

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P332825-840

Luminaire Tested: **S124DIW-S1020D1340U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332825-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S1020D1340U840-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1340 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9672.6 lumens  
Efficiency: N/A  
Efficacy: 138.6 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

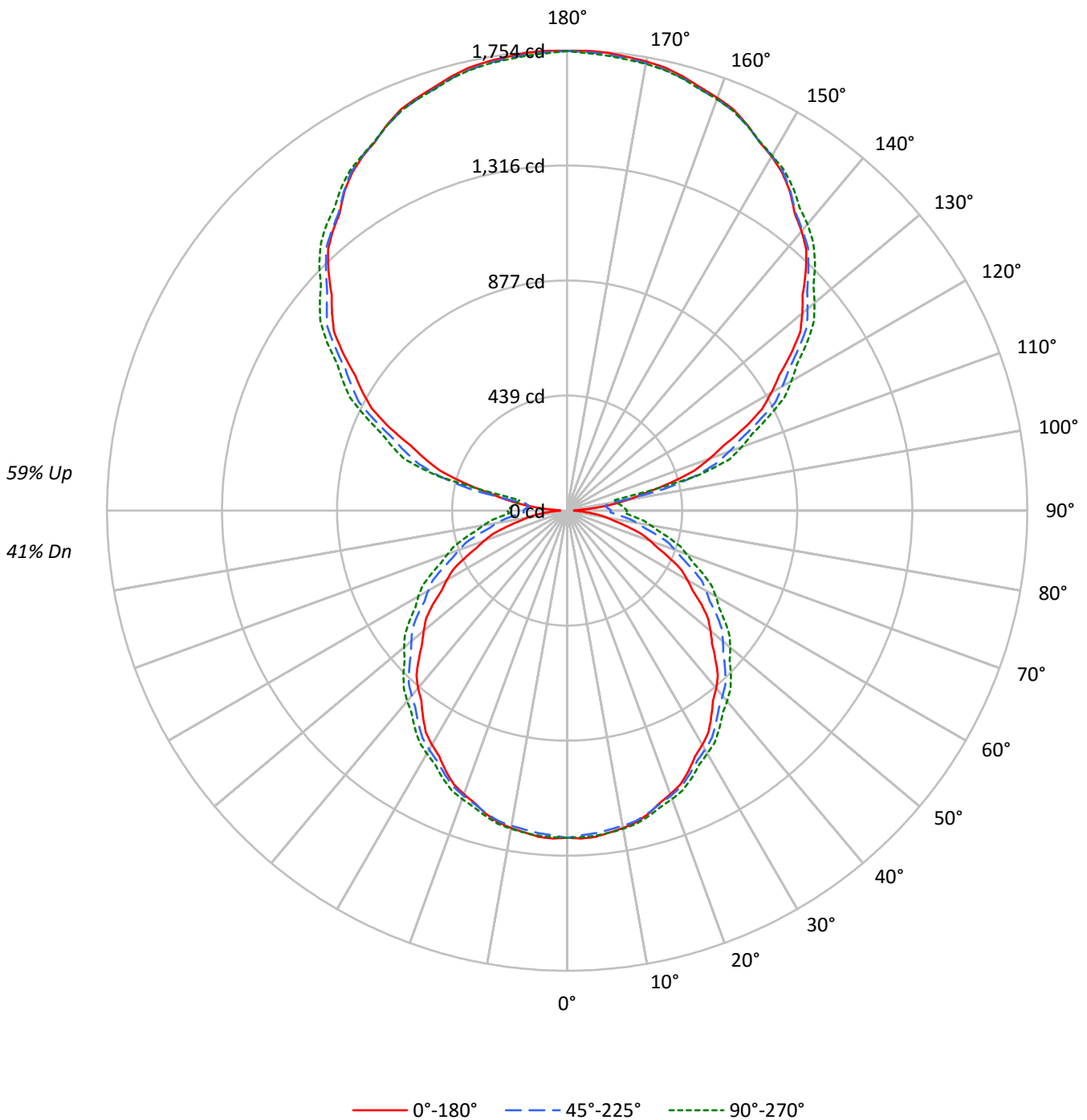
Input Watts (W): 69.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41
1	95	90	86	82	86	82	79	75	67	65	62	53	52	50	41	40	38	33
2	86	78	72	67	78	71	66	61	58	54	51	46	44	41	35	33	32	27
3	78	68	61	55	71	62	56	51	51	46	42	41	37	34	31	29	27	22
4	71	60	52	46	65	55	48	43	45	40	36	36	32	29	28	25	23	19
5	65	54	45	39	59	49	42	36	40	35	31	32	28	25	25	22	20	16
6	60	48	40	34	54	44	37	31	36	31	27	29	25	22	22	19	17	14
7	55	43	35	29	50	40	32	27	33	27	23	26	22	19	20	17	15	12
8	51	39	31	26	47	36	29	24	30	24	20	24	20	17	19	16	13	11
9	48	36	28	23	43	33	26	21	27	22	18	22	18	15	17	14	12	10
10	45	32	25	20	41	30	23	19	25	20	16	20	16	14	16	13	11	9

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	10066	10066	10066
5°	10097	9838	9866
10°	10035	9677	9669
15°	9945	9490	9439
20°	9810	9285	9213
25°	9657	9054	8967
30°	9492	8825	8712
35°	9305	8591	8490
40°	9154	8367	8259
45°	8931	8161	8059
50°	8744	7924	7849
55°	8549	7700	7603
60°	8247	7415	7378
65°	7914	7109	7102
70°	7513	6760	6779
75°	6949	6374	6488
80°	6328	6004	6203
85°	5536	5679	6037



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.1	1.2
10°-20°	338.3	3.5
20°-30°	511.5	5.3
30°-40°	618.9	6.4
40°-50°	654.3	6.8
50°-60°	615.8	6.4
60°-70°	510.9	5.3
70°-80°	358.9	3.7
80°-90°	207.9	2.1
90°-100°	180.4	1.9
100°-110°	471.1	4.9
110°-120°	790.4	8.2
120°-130°	961.2	9.9
130°-140°	1006.9	10.4
140°-150°	930.9	9.6
150°-160°	748.3	7.7
160°-170°	482.6	5.0
170°-180°	166.3	1.7
0°-30°	967.9	10.0
0°-40°	1586.8	16.4
0°-60°	2856.9	29.5
0°-90°	3934.6	40.7
90°-120°	1441.9	14.9
90°-150°	4340.8	44.9
90°-180°	5738.0	59.3
0°-180°	9672.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1247	1247	1247	1247	1247	
5°	1248	1244	1234	1245	1244	118
15°	1197	1198	1194	1206	1205	337
25°	1095	1103	1107	1122	1124	504
35°	958	974	989	1007	1012	600
45°	799	825	852	875	882	617
55°	626	656	697	724	733	557
65°	433	478	525	559	571	429
75°	240	292	350	388	402	255
85°	74	133	196	236	251	79
90°	26	97	167	214	229	18
95°	90	95	150	194	210	107
105°	407	444	501	543	512	427
115°	744	762	804	836	848	733
125°	1040	1046	1076	1106	1117	929
135°	1286	1286	1300	1324	1336	991
145°	1482	1484	1484	1494	1502	926
155°	1623	1624	1620	1625	1622	748
165°	1712	1706	1706	1715	1704	484
175°	1751	1744	1745	1755	1741	167
180°	1751	1751	1751	1751	1751	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1251.3	1250.6	1249.8	1249.1	1248.3	1247.0	1245.0	1243.0	1241.0	1239.0	1240.7
5°	1248.2	1247.3	1246.4	1245.5	1244.6	1242.9	1240.8	1238.6	1236.5	1234.3	1236.8
7.5°	1237.6	1237.1	1236.5	1236.0	1235.4	1234.3	1232.4	1230.6	1228.8	1227.0	1229.8
10°	1228.7	1228.4	1228.1	1227.8	1227.5	1226.5	1225.0	1223.5	1221.8	1220.3	1223.1
12.5°	1216.4	1216.4	1216.3	1216.2	1216.2	1215.6	1214.6	1213.5	1212.4	1211.3	1214.0
15°	1196.6	1196.9	1197.2	1197.5	1197.8	1197.5	1196.6	1195.7	1194.7	1193.8	1196.6
17.5°	1169.5	1170.4	1171.3	1172.3	1173.3	1173.6	1173.4	1173.3	1173.1	1172.9	1175.7
20°	1150.5	1151.4	1152.4	1153.3	1154.3	1154.9	1155.2	1155.5	1155.8	1156.1	1159.2
22.5°	1129.2	1130.4	1131.7	1132.9	1134.0	1134.9	1135.4	1136.0	1136.5	1137.1	1140.2
25°	1094.7	1096.5	1098.3	1100.2	1102.1	1103.5	1104.4	1105.4	1106.3	1107.2	1110.6
27.5°	1056.1	1058.8	1061.6	1064.3	1067.0	1069.1	1070.6	1072.0	1073.4	1074.8	1078.0
30°	1030.5	1032.9	1035.4	1037.8	1040.4	1042.7	1044.8	1047.0	1049.1	1051.4	1054.8
32.5°	1002.5	1005.5	1008.5	1011.5	1014.4	1017.1	1019.6	1022.0	1024.4	1026.8	1030.7
35°	957.9	961.6	965.2	969.0	972.7	976.1	979.3	982.3	985.4	988.6	992.9
37.5°	912.8	917.2	921.4	925.7	930.0	934.0	937.9	941.7	945.6	949.5	953.8
40°	883.8	887.9	891.9	896.0	900.0	904.1	908.5	912.8	917.2	921.5	926.1
42.5°	850.3	854.9	859.4	863.9	868.4	873.2	878.3	883.4	888.5	893.6	898.8
45°	798.6	804.6	810.4	816.4	822.2	828.1	834.0	839.9	845.8	851.7	857.0
47.5°	749.2	755.3	761.3	767.5	773.6	780.0	786.8	793.7	800.5	807.3	812.7
50°	713.5	720.3	727.1	734.0	740.7	747.6	754.5	761.2	768.1	774.9	781.1
52.5°	677.7	684.6	691.4	698.2	705.1	712.4	720.1	728.0	735.8	743.7	749.8
55°	625.5	632.1	638.5	645.1	651.6	659.4	668.8	678.1	687.4	696.7	703.0
57.5°	567.1	575.2	583.3	591.4	599.5	608.0	617.3	626.6	635.8	645.1	652.5
60°	529.2	537.2	545.3	553.4	561.5	570.6	580.9	591.1	601.3	611.6	618.6
62.5°	492.3	501.1	510.0	518.8	527.6	537.0	547.3	557.5	567.8	578.0	585.2
65°	432.8	442.7	452.7	462.6	472.5	482.8	493.3	503.9	514.4	525.0	532.7
67.5°	375.6	386.2	396.7	407.3	417.8	428.7	440.0	451.3	462.6	473.9	481.8
70°	336.5	347.1	357.6	368.1	378.7	389.9	401.6	413.4	425.3	437.1	445.5
72.5°	298.5	309.3	320.1	330.9	341.7	353.4	365.9	378.4	391.0	403.5	411.6
75°	240.1	251.7	263.1	274.6	286.1	298.3	311.3	324.4	337.4	350.4	359.1
77.5°	185.7	197.8	210.1	222.2	234.4	247.2	260.9	274.6	288.2	301.8	310.6
80°	152.2	164.6	177.0	189.5	201.9	214.9	228.5	242.2	255.8	269.4	278.8
82.5°	118.7	131.6	144.5	157.4	170.3	183.6	197.2	210.9	224.6	238.2	247.7
85°	74.0	87.1	100.1	113.1	126.1	139.7	153.6	167.5	181.5	195.5	204.8
87.5°	42.1	55.4	68.7	82.0	95.3	109.0	123.0	137.1	151.2	165.2	174.6
90°	26.3	41.9	57.5	73.1	88.8	104.3	120.1	135.7	151.4	167.0	177.8
92.5°	37.8	49.1	60.4	71.8	83.1	96.6	112.3	127.9	143.6	159.3	169.8
95°	90.2	90.6	90.9	91.2	91.6	98.3	111.3	124.3	137.2	150.3	160.4
97.5°	169.5	184.4	199.4	214.4	229.4	226.9	207.0	187.1	167.2	147.4	155.7
100°	230.1	243.5	256.8	270.1	283.4	276.0	247.9	219.8	191.8	163.7	167.1
102.5°	299.3	310.2	321.1	332.0	343.1	351.7	358.4	365.0	371.6	378.2	333.0
105°	406.9	414.8	422.7	430.7	438.7	449.1	462.0	474.9	487.9	500.8	511.2
107.5°	509.0	514.9	520.9	526.8	532.8	542.2	555.0	567.9	580.8	593.6	602.5
110°	577.0	582.3	587.4	592.7	597.9	606.8	619.5	632.0	644.6	657.2	665.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	643.0	648.4	653.8	659.2	664.7	673.0	684.1	695.3	706.5	717.7	724.5
115°	744.5	748.2	751.8	755.5	759.2	765.8	775.5	785.1	794.8	804.4	811.8
117.5°	837.3	840.1	842.9	845.8	848.6	855.0	864.8	874.7	884.6	894.5	900.8
120°	899.0	901.1	903.2	905.2	907.4	912.8	921.5	930.2	938.9	947.6	954.4
122.5°	957.7	958.6	959.5	960.3	961.2	966.1	975.0	983.9	992.8	1001.8	1008.2
125°	1040.4	1041.3	1042.1	1042.9	1043.8	1047.8	1055.0	1062.2	1069.3	1076.5	1083.3
127.5°	1119.7	1119.7	1119.7	1119.6	1119.6	1123.3	1130.5	1137.9	1145.2	1152.5	1157.9
130°	1169.9	1169.9	1169.9	1169.9	1169.9	1172.8	1178.6	1184.5	1190.3	1196.2	1202.0
132.5°	1217.1	1217.3	1217.5	1217.8	1218.0	1220.6	1225.7	1230.7	1235.9	1240.9	1246.6
135°	1286.5	1286.2	1285.9	1285.6	1285.3	1286.8	1290.1	1293.4	1296.8	1300.2	1305.7
137.5°	1349.1	1348.9	1348.7	1348.5	1348.3	1349.4	1351.7	1354.0	1356.3	1358.7	1363.8
140°	1389.9	1390.2	1390.5	1390.8	1391.0	1391.6	1392.5	1393.4	1394.3	1395.1	1400.1
142.5°	1425.5	1426.4	1427.4	1428.5	1429.5	1430.0	1430.2	1430.4	1430.5	1430.7	1434.8
145°	1481.6	1482.1	1482.7	1483.2	1483.8	1484.1	1484.1	1484.1	1484.1	1484.1	1486.2
147.5°	1526.3	1527.6	1528.9	1530.2	1531.6	1532.2	1531.9	1531.6	1531.3	1531.0	1531.5
150°	1558.8	1559.6	1560.5	1561.4	1562.3	1562.5	1562.3	1562.0	1561.7	1561.4	1561.4
152.5°	1585.0	1585.8	1586.7	1587.5	1588.4	1588.6	1588.1	1587.5	1587.0	1586.5	1587.0
155°	1623.0	1623.2	1623.5	1623.8	1624.1	1623.8	1623.0	1622.0	1621.1	1620.3	1621.4
157.5°	1655.2	1655.0	1654.8	1654.6	1654.5	1653.9	1652.8	1651.8	1650.9	1649.9	1651.4
160°	1674.0	1673.1	1672.2	1671.3	1670.5	1669.9	1669.6	1669.3	1669.0	1668.8	1670.5
162.5°	1690.7	1689.6	1688.6	1687.5	1686.4	1685.7	1685.4	1685.1	1684.8	1684.5	1686.2
165°	1712.0	1710.5	1709.1	1707.6	1706.2	1705.5	1705.5	1705.5	1705.5	1705.5	1707.8
167.5°	1728.8	1727.3	1725.8	1724.2	1722.7	1721.8	1721.7	1721.5	1721.3	1721.1	1723.7
170°	1738.2	1736.5	1734.6	1732.9	1731.2	1730.5	1730.7	1731.0	1731.3	1731.6	1733.9
172.5°	1744.4	1742.7	1741.0	1739.2	1737.5	1736.8	1737.1	1737.4	1737.6	1737.9	1740.2
175°	1751.3	1749.5	1747.8	1746.1	1744.2	1743.5	1743.8	1744.1	1744.4	1744.7	1747.4
177.5°	1754.4	1752.8	1751.1	1749.5	1747.9	1747.3	1747.8	1748.3	1748.7	1749.2	1751.0
180°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1242.5	1244.3	1246.0	1246.7	1246.5	1246.2	1246.0	1245.8
5°	1239.2	1241.7	1244.3	1245.3	1245.0	1244.7	1244.4	1244.1
7.5°	1232.6	1235.4	1238.2	1239.4	1239.1	1238.8	1238.5	1238.2
10°	1225.9	1228.7	1231.5	1232.7	1232.4	1232.1	1231.8	1231.5
12.5°	1216.5	1219.0	1221.5	1222.8	1222.7	1222.6	1222.6	1222.5
15°	1199.4	1202.1	1205.0	1206.2	1205.9	1205.6	1205.3	1205.0
17.5°	1178.5	1181.4	1184.3	1185.6	1185.3	1185.1	1184.8	1184.6
20°	1162.3	1165.4	1168.5	1170.0	1170.0	1170.0	1170.0	1170.0
22.5°	1143.3	1146.4	1149.5	1151.3	1151.9	1152.3	1152.8	1153.3
25°	1114.1	1117.4	1120.8	1122.8	1123.1	1123.4	1123.7	1124.0
27.5°	1081.2	1084.3	1087.5	1089.2	1089.6	1090.0	1090.4	1090.8
30°	1058.2	1061.6	1065.0	1067.0	1067.6	1068.2	1068.9	1069.5
32.5°	1034.6	1038.5	1042.5	1044.7	1045.3	1045.9	1046.5	1047.2
35°	997.2	1001.6	1005.9	1008.6	1009.5	1010.4	1011.4	1012.3
37.5°	958.3	962.7	967.0	969.8	970.8	971.8	972.7	973.7
40°	930.8	935.4	940.2	943.1	944.3	945.5	946.8	948.1
42.5°	903.9	909.1	914.2	917.3	918.3	919.3	920.3	921.2
45°	862.2	867.6	872.8	876.3	877.8	879.3	880.9	882.4
47.5°	818.2	823.6	829.2	832.8	834.7	836.6	838.4	840.3
50°	787.3	793.6	799.7	803.8	805.7	807.5	809.3	811.2
52.5°	756.1	762.2	768.5	772.4	774.4	776.2	778.1	779.9
55°	709.1	715.4	721.5	725.6	727.4	729.3	731.1	733.1
57.5°	659.8	667.2	674.6	679.1	680.9	682.7	684.4	686.1
60°	625.8	633.0	640.1	644.9	647.4	649.8	652.4	654.8
62.5°	592.3	599.5	606.6	611.4	613.9	616.3	618.8	621.4
65°	540.5	548.3	556.0	561.2	563.6	566.1	568.6	571.1
67.5°	489.7	497.6	505.4	510.6	513.0	515.4	517.9	520.3
70°	453.7	462.1	470.5	475.8	478.0	480.2	482.3	484.5
72.5°	419.8	427.9	436.1	441.3	443.7	446.2	448.6	451.0
75°	367.8	376.5	385.2	390.9	393.7	396.6	399.3	402.1
77.5°	319.5	328.3	337.1	343.1	346.0	349.0	351.9	355.0
80°	288.1	297.4	306.7	312.6	315.1	317.6	320.0	322.6
82.5°	257.3	266.9	276.4	282.6	285.3	288.0	290.7	293.5
85°	214.1	223.4	232.7	238.9	242.1	245.1	248.2	251.4
87.5°	183.9	193.3	202.6	208.7	211.6	214.4	217.2	220.0
90°	188.5	199.2	210.1	216.9	219.9	223.1	226.1	229.1
92.5°	180.3	190.8	201.3	207.8	210.5	213.0	215.6	218.2
95°	170.6	180.7	190.8	197.4	200.5	203.6	206.6	209.7
97.5°	164.0	172.3	180.6	186.2	189.2	192.2	195.1	198.0
100°	170.6	174.0	177.4	180.4	182.9	185.3	187.8	190.3
102.5°	287.7	242.5	197.2	175.8	178.2	180.8	183.3	185.7
105°	521.6	532.0	542.3	543.5	535.5	527.6	519.6	511.5
107.5°	611.4	620.4	629.2	635.4	638.7	642.1	645.4	648.7
110°	672.7	680.3	688.1	693.7	697.0	700.3	703.7	707.1





TEST NUMBER: P332825-840

CATALOG NUMBER: S124DIW-S1020D1340U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	731.2	738.0	744.8	749.9	753.6	757.1	760.7	764.3
115°	819.2	826.6	834.0	838.8	841.0	843.1	845.4	847.5
117.5°	907.2	913.5	919.9	924.2	926.6	929.0	931.3	933.6
120°	961.2	968.0	974.7	979.1	981.0	982.9	984.8	986.7
122.5°	1014.8	1021.4	1027.9	1032.1	1033.7	1035.4	1037.0	1038.6
125°	1090.0	1096.8	1103.6	1108.0	1110.1	1112.4	1114.5	1116.6
127.5°	1163.3	1168.7	1174.1	1177.8	1179.6	1181.5	1183.4	1185.3
130°	1207.9	1213.8	1219.6	1223.6	1225.4	1227.2	1229.1	1230.9
132.5°	1252.1	1257.8	1263.4	1267.1	1268.7	1270.3	1271.9	1273.5
135°	1311.2	1316.8	1322.3	1326.4	1328.8	1331.2	1333.6	1336.2
137.5°	1369.1	1374.2	1379.4	1382.6	1384.0	1385.4	1386.7	1388.2
140°	1405.0	1409.9	1414.8	1418.2	1420.0	1421.9	1423.7	1425.5
142.5°	1439.1	1443.2	1447.3	1450.2	1451.5	1452.9	1454.2	1455.6
145°	1488.3	1490.6	1492.7	1494.7	1496.5	1498.3	1500.2	1502.0
147.5°	1532.0	1532.4	1532.9	1533.8	1535.1	1536.3	1537.6	1538.9
150°	1561.4	1561.4	1561.4	1561.5	1561.8	1562.1	1562.4	1562.7
152.5°	1587.4	1587.9	1588.3	1588.5	1588.3	1588.1	1588.0	1587.8
155°	1622.7	1623.8	1625.0	1625.1	1624.3	1623.4	1622.4	1621.6
157.5°	1652.9	1654.5	1656.0	1656.0	1654.5	1652.9	1651.4	1649.9
160°	1672.2	1674.0	1675.8	1675.8	1674.0	1672.2	1670.5	1668.8
162.5°	1688.0	1689.7	1691.4	1691.3	1689.4	1687.4	1685.4	1683.4
165°	1710.1	1712.4	1714.8	1714.5	1712.0	1709.4	1706.8	1704.1
167.5°	1726.3	1728.8	1731.4	1731.2	1728.3	1725.4	1722.5	1719.6
170°	1736.3	1738.6	1740.9	1740.6	1737.8	1734.8	1731.9	1729.0
172.5°	1742.5	1744.9	1747.3	1746.9	1743.6	1740.5	1737.4	1734.2
175°	1750.0	1752.6	1755.2	1754.7	1751.3	1747.8	1744.2	1740.8
177.5°	1752.9	1754.7	1756.7	1756.2	1753.3	1750.6	1747.8	1744.9
180°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3

(END OF REPORT)